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ABSTRACT

This directory describes each of the 147 cooperative college-school science projects supported by the National Science Foundation in 1970. The purpose of each is to improve in some way the elementary and secondary school science and mathematics programs of the participating school systems. (RS)

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Cooperative College- School Science Program



**Joint Efforts of School Systems
and Colleges to Improve
Science and Mathematics
in the Schools**

**1970
Directory**

**NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550**

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Suggestions for Preparation of Proposals
to this Program will be available April 1970 and will be sent upon request. See page 2 of this brochure.

The Cooperative College-School Science Program

APPROACHES FOR SCHOOL SYSTEM IMPROVEMENT

The National Science Foundation through the Cooperative College-School Science Program (CCSS) provides opportunities for colleges, universities, and similar institutions to work with school systems in improving elementary and secondary school science and mathematics programs. Projects supported through CCSS are addressed to practical problems of the school science program which are of sufficient substance and complexity to warrant a cooperative approach by the schools and a nearby college.

Many of the projects in CCSS have as their purpose the introduction into school classrooms of one of the science or mathematics instructional programs which have been developed in the last dozen years by teams of scientists and educators. These programs have opened new and dramatic possibilities for science and mathematics teaching and many schools now wish to make use of them.

A decision on the part of a school system to adopt a new science or mathematics program implies many commitments. New books, equipment and supplies, even new laboratory facilities, may have to be provided. Adaptation of materials to local needs may be desirable. Most importantly, instruction must be provided for the teachers who will introduce the materials. A grant from the CCSS Program may enable a college or university to provide much of the expert assistance in implementation which is required. As an approach, the system may arrange for a group of its teachers to participate in a summer instructional program jointly planned by the college and the school system. This could be followed during the next academic year by further in-service teacher training, school classroom visits by college personnel, informational meetings for school administrators, etc. Grants are not primarily for the purpose of planning, but rather for introducing desired developments. Major planning activities between the schools and the cooperating college have already occurred in advance of a proposal being submitted to the Program.

Not all of the projects supported through the CCSS Program are to introduce school system changes as comprehensive as a new science curriculum. In some cases, existing courses may need to be modernized and enriched as part of a revitalization of the science program. Again, a college may assist by working with the school system to provide relevant instruction and intellectual support for school system personnel.

The impetus for a project may come from the schools, sensitive to their own requirements and anxious to begin some reform. In other cases, the college may take the lead in introducing school system administrators and teachers to the possibility of implementing an improved science or mathematics offering through a CCSS grant.

Whatever its genesis, a project will almost certainly involve training provided by the college for school system personnel. For really small school systems, this may include instructing most of the system teachers through summer and academic year programs. In the case of larger systems, this approach is infeasible because of scale, and a strong pattern is for the college to train a group of teachers in such a way that they become resource teachers and instructors of other teachers in the system. A project may involve a

continuing relationship between college and schools extending over a period of a few years until desired changes have been brought about, but support through CCSS should have a planned phasing out within a reasonable time.

Grants are made in the CCSS Program only to colleges, universities, and similar institutions although schools are involved in the planning. Because these projects are designed to assist specific schools, teacher-participants are selected from those schools. Teachers seeking information should therefore communicate with the individual project directors, not with the National Science Foundation. The programs receive adequate publicity within the school systems to which they apply.

Teachers who receive training in these projects during several weeks in the summer usually receive stipends and dependency allowances through the Foundation grant. For academic year activities, the grant may also provide funds to assist with transportation and meal costs. As partners in the enterprise, the schools are encouraged to participate in the financial support of a project, but monetary participation is not mandatory. The grantee institution is responsible for proposing cost-sharing arrangements for participant support when that is appropriate.

Some CCSS projects have a State-wide or regional orientation. A project may, for example, seek to improve instruction in one of the sciences in a number of school systems distributed throughout a region. For these projects, the Foundation sometimes supports a consortium of colleges to present a uniform kind of training to teachers and, at the same time, promote close association of the school systems with nearby and easily accessible college resources. One of the colleges, working in alliance with the State department of public instruction, may play a central role in coordinating project activities.

A number of CCSS projects assist the schools to provide better instructional programs for specific groups of students. Some attempt to promote the development in science of students who are already well motivated and capable; others are designed to increase the relevance and meaning of science and mathematics for students who are socially or educationally disadvantaged. The mechanism of the CCSS Program which uses, in tandem, capabilities of the schools and the resources of the colleges can contribute fresh approaches for educating the disadvantaged; however, funds are limited, and only model or pilot projects can be supported. In particular, support for the training of large groups of students is not within the purview of CCSS. Successful projects should aim at school system changes which will operate to achieve the desired goals.

In its fiscal year 1970 support for CCSS projects, the Foundation awarded 147 grants totaling \$5,360,344 to higher educational institutions. Through these grants, training opportunities for approximately 6,265 teachers will be made available. A third of the projects focus on elementary schools and two-thirds on junior or senior high schools. A few of the projects provide for the use of special student-demonstration classes. Brief descriptions of the 147 Cooperative College-School Science projects are appended.

The Foundation will have available in April 1970 a brochure "Cooperative College-School Science Program for School System Improvement — Suggestions for Preparation of Proposals" (E 70-P-22). This publication, which will be sent upon request, provides information about the Program and the preparation of proposals for the August 11, 1970, closing date.

Inquiries concerning the CCSS Program should be addressed to:

Cooperative College-School Science Program
PES Division
National Science Foundation
Washington, D.C. 20550

Cooperative College-School Science Projects 1970-71

ALABAMA

SPRING HILL COLLEGE, Mobile 36608; *Mathematics*; summer: 6 weeks, June 8 – July 20, 1970; academic year 1970-71: 30 meetings; 25 secondary school teachers from Baldwin and Mobile Counties, Alabama; and Jackson, Harrison, and George Counties, Mississippi. The mathematics curriculum improvement programs under development in cooperating school systems will be furthered through strengthening the knowledge and instructional skills of mathematics teachers from those systems. Dr. Walter L. Furman, Department of Mathematics.

TROY STATE UNIVERSITY, Troy 36081; *Biology* (Biological Science Curriculum Study, Green Version materials); summer: 8 weeks, June 22 – August 14, 1970; academic year 1970-71: 5 meetings; 25 teachers from school systems of Pike and adjacent counties. Participants will be trained to teach the Green Version of BSCS and through this to improve the instructional programs in biology in their schools. Dr. James C. Wilkes, Department of Science.

UNIVERSITY OF ALABAMA, Tuscaloosa 35486; *Chemistry*; spring 1970: 5 workshop meetings; summer: 6 weeks, June 8 – July 17, 1970; academic year 1970-71: 5 meetings; 20 high school teachers from school systems in Tuscaloosa City and from Tuscaloosa, Greene, and Pickens Counties. Subject matter and teaching skills in chemistry will be strengthened for teachers who will be introduced to modern curriculum materials through workshops, a summer course, and through assistance in implementing the materials into their schools. Professor Robert H. Garner, Department of Chemistry.

UNIVERSITY OF ALABAMA IN BIRMINGHAM, Birmingham 35233; *Biological Sciences*; summer: 5 weeks, June 29 – July 31, 1970; academic year 1970-71: 9 meetings; 20 secondary school biology teachers, 2 school administrators from the City of Birmingham and Jefferson County Schools. Participating teachers will study and be prepared to implement an advanced laboratory-oriented course in biology in their schools in 1970-71. Professor Ernest Burford, Division of Education.

ARIZONA

ARIZONA STATE UNIVERSITY, Tempe 85281; *Mathematics*; summer: 6 weeks, June 29 – August 8, 1970; academic year 1970-71: 8 meetings; 50 elementary school teachers, three education specialists from Bureau of Indian Affairs schools in the Navajo Area. Teachers will help prepare resource materials for use in the mathematics instruction of Navajo children and, using video tapes of university lectures, will assist other teachers during the academic year to implement these materials into Navajo reservation classrooms. Dr. Lehi T. Smith, Department of Mathematics.

UNIVERSITY OF ARIZONA, Tucson 85721; *Anthropology*; summer: 6 weeks, June 15 – July 25, 1970; academic year 1970-71: 30 meetings; 10 junior high school, 25 senior high school teachers from Tucson School District No. 1. The participants will gain experience with anthropological concepts and techniques and will be assisted by the project staff in introducing these into the natural and social science courses of the schools. Dr. John H. Chilcott, Anthropology Department.

UNIVERSITY OF ARIZONA, Tucson 85721; *Biological Sciences* (Ecology); spring 1970: 18 meetings, February 1 – May 31, 1970; summer: 6 weeks, July 6 – August 17, 1970; academic year 1970-71: 18 meetings, September 15, 1970 -- January 31, 1971; 12 life science teachers, 24 students from Tucson area secondary schools. Participant teams will organize research projects in desert ecology, and will introduce this subject into the science curriculum of the schools. Dr. Tien Wei Yang, Department of Biological Sciences.

UNIVERSITY OF ARIZONA, Tucson 85721; *Junior High School Science* (AAAS Science – A Process Approach, and Time, Space and Matter materials); summer: 5 weeks, June 15 – July 18, 1970; academic year 1970-71: 20 meetings, 35 junior high school teachers and 26 administrators from Tucson School District No. 1. Teachers will receive training in the AAAS and the TSM materials and be assisted in implementing these into their classes. Dr. Edgar J. McCullough, School of Earth Sciences.

ARKANSAS

UNIVERSITY OF ARKANSAS, Fayetteville 72701; *Physical Sciences* (Introductory Physical Science materials); summer: 6 weeks, June 1 – July 10, 1970; academic year 1970-71: 4 meetings; 25 junior high school teachers from Fayetteville and other school systems of northwest Arkansas. Teachers will gain experience using the IPS materials and will be aided in introducing this curriculum in their classrooms. Dr. Sallylee Hines, Science Education Department.

CALIFORNIA

CALIFORNIA STATE COLLEGE AT BAKERSFIELD, Bakersfield 93304; *Interdisciplinary Science* (Environmental Science); summer: 6 weeks, July 6 – August 14, 1970; academic year 1970-71: 4 meetings; 35 junior high school teachers and 5 master teachers from school districts in Kern County. Teachers will receive instruction in ecology and earth science, develop instructional units for their classrooms, and serve as resource persons for environmental science in their school districts. Dr. John R. Coash, School of Natural Science and Mathematics.

CALIFORNIA STATE COLLEGE AT FULLERTON, Fullerton 92631; *Mathematics*; summer: 8 weeks, June 15 – August 7, 1970; academic year 1970-71: 10 meetings; 30 teachers from the Anaheim Union and the Fullerton Union High School Districts and from Orange County. Mathematical background and special teaching techniques will be acquired by teachers who will then be assisted in introducing an experimental program in pre-algebra mathematics into their classes. Dr. L. Clark Lay, Department of Science and Mathematics Education.

CALIFORNIA STATE COLLEGE AT HAYWARD, Hayward 94542; *Biology* (BSCS Special Materials); summer: 3 weeks, August 10 – 28, 1970; academic year 1970-71: 16 meetings; 40 secondary school teachers from Hayward, Oakland, Richmond, Mt. Diablo and San Lorenzo School Districts. Teachers will be instructed in the use of the BSCS Special Materials and with the aid of the project staff will introduce these materials in their biology classes. Dr. Harvey I. Scudder, Division of Biological and Health Sciences.

CHICO STATE COLLEGE, Chico 95926; *Mathematics*; summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 5 meetings; 12 junior high school teachers, 18 senior high school teachers from 10 counties of northern California. Participating teachers will receive careful training in the subject matter and the teaching of geometry in this second year of a sequential program designed to improve mathematics in the cooperating schools. Dr. Lloyd M. Cook, Department of Mathematics.

COLLEGE OF NOTRE DAME, Belmont 94002; *Sociology* (Sociological Resources for Secondary Schools materials); summer: 4 weeks, July 20 — August 14, 1970; academic year 1970-71: 15 meetings; 30 junior and senior high school social studies teachers from San Mateo area school districts. The teachers, who are especially concerned with instructing disadvantaged students, will be trained in SRSS materials and in the implementing of these into social science classes. Dr. June R. Chapin, Department of Education.

COLLEGE OF THE HOLY NAMES, Oakland 94619; *Elementary School Science* (Elementary Science Study materials); summer: 4 weeks, July 6 — 31, 1970; academic year 1970-71: 18 seminar meetings, 46 teachers, 4 principals or consultants from the Oakland Public School District. The participants will study ESS materials and will introduce these in selected poverty area schools in Oakland. Sister Alma Rose Gaffney, Department of Physical Science.

SAN DIEGO STATE COLLEGE, San Diego 92115; *Computer Science*; summer: 3 weeks, August 17 — September 4, 1970; academic year 1970-71: 18 meetings; 50 secondary school teachers from San Diego County schools. Background mathematics training and experience with computers will be given teachers to prepare them for the instructional use of computers in their schools. Dr. Charles R. Burton, Department of Mathematics.

SAN FRANCISCO STATE COLLEGE, San Francisco 94132; *Biological Sciences* (Ecology and Conservation); summer: 2 weeks, August 24 — September 4, 1970; academic year 1970-71: 10 meetings and 16 field trips; 32 teachers from 8 schools in the Mill Valley School District. Participating teachers will be prepared to teach concepts in field biology, which appear in adopted textbooks, by using the outdoor environment near their schools as field laboratories. Mrs. Rembert B. Kingsley, Department of Ecology and Systematic Biology.

SYRACUSE UNIVERSITY, Syracuse, New York 13210 (with *Los Angeles City Schools*); *Mathematics* (Madison Project materials); November 1969 — June 1970: a coordinator will work with schools of the Los Angeles City School System to implement Madison Project mathematics materials into grade K-8; training activities will be developed for teachers, principals, and other school administrators. Director: Dr. Robert B. Davis, Department of Mathematics, Syracuse University; Los Angeles contact: Mr. George Arbogast, Los Angeles City Schools, 450 North Grand Avenue, Los Angeles. (This project is also listed under NEW YORK.)

UNIVERSITY OF CALIFORNIA, Berkeley 94720; *Elementary School Science* (Science Curriculum Improvement Study materials); summer: 4 weeks, June 15 — July 10, 1970; 36 elementary school teachers and 14 principals; academic year 1970-71: 18 meetings; 144 teachers and 14 principals from Berkeley Unified School District. Teachers and school principals will be trained in the use of SCIS science units in multi-age, non-graded classes. Professor Robert Karplus, Lawrence Hall of Science.

UNIVERSITY OF CALIFORNIA, Berkeley 94720; *Elementary School Sciences* (Science Curriculum Improvement Study materials); summer: 4 weeks, July 6-30, 1970; academic year 1970-71; 18 meetings; 55 elementary school teachers and supervisors from San Francisco Unified School District. Participants will be prepared to introduce SCIS in this second year of an implementation project for the San Francisco Public Schools and will act as diffusion agents for the curriculum in various parts of the city. Professor Robert Karplus, Lawrence Hall of Science.

UNIVERSITY OF CALIFORNIA, Berkeley 94720; *Junior High School Science*; summer: 2 weeks, August 31 – September 16, 1970; 15 substitute science teachers; academic year 1970-71: 200 junior high school science teachers in groups of 25, each group to spend 2 weeks at Lawrence Hall of Science, plus follow up sessions; teachers from 22 San Francisco Bay Area school districts. Each participating school will send its science faculty to the Lawrence Hall of Science for a two-week period of instruction, plus follow-up sessions, on new junior high school science materials. Professor Watson M. Laetsch, Department of Botany.

UNIVERSITY OF CALIFORNIA, Davis 95616; *Elementary School Science* (AAAS Science – A Process Approach); summer: 5 weeks, June 22 – July 24, 1970; academic year 1970-71: 10 meetings; 30 elementary school teachers and 5 elementary school principals from schools of Stockton, California. Teachers and administrators will be instructed in the use of AAAS materials and will introduce these into their classes during the following academic year. Dr. Victor A. Perkes, Department of Education.

UNIVERSITY OF CALIFORNIA, Los Angeles 90024; *Mathematics*; summer: 6 weeks, July 6 – August 14, 1970; academic year 1970-71. 8 meetings; 100 seventh and eighth grade teachers from Los Angeles Unified School District. New textbooks will be adopted in the Los Angeles School District in 1970; this project will prepare teachers to instruct the revised mathematics curriculum. Professor John W. Green, Department of Mathematics.

COLORADO

COLORADO STATE COLLEGE, Greeley 80631; *Physics* (Harvard Project Physics materials); summer: 8 weeks, June 16 – August 7, 1970; academic year 1970-71: 6 meetings; 25 secondary physics teachers from Denver area schools. The participants will study Harvard Project Physics and will be assisted in implementing the materials into their physics classes. Dr. Richard Fry, Department of Physics.

UNIVERSITY OF COLORADO, Boulder 80302; *Elementary School Science* (AAAS Science – A Process Approach, Science Curriculum Improvement Study, Elementary Science Study materials); spring 1970: 9 meetings; summer: 2 weeks, August 17 – 28, 1970; fall 1970: 16 meetings; 45 elementary school teachers from identified school districts in Colorado. Each teacher will receive instruction in the use of one of three new elementary science programs as part of a statewide plan to implement these programs in elementary schools throughout Colorado. Dr. Ronald D. Anderson, School of Education.

UNIVERSITY OF COLORADO, Boulder 80302; *Engineering* (Engineering Concepts Curriculum Project materials); summer: 6 weeks, July 6 – August 14, 1970; academic year 1970-71: 4 two-day sessions; 50 teachers and 20 administrators from Colorado schools. Participants will be instructed in the content and philosophy of the ECCP course and will receive training for implementing this program in their schools. Dean G. J. Maler, College of Engineering.

UNIVERSITY OF COLORADO, Boulder 80302; *Mathematics* (Computer Science); August 1970 — January 1971: 20 meetings; 30 secondary school teachers from the metropolitan Denver area. The participants will be trained to use newly developed computer-based instructional materials in teaching second year algebra and trigonometry in their schools. Dr. C. C. Feng, Department of Civil Engineering.

UNIVERSITY OF DENVER, Denver 80210; *Mathematics*; spring 1970: 3 two-day conferences, February 5 — April 3, 1970; summer: 2 weeks, June 8 - 19, 1970; 15 teachers; academic year: September 1970 — December 1970; in-service training of 120 junior high school teachers in the five regional centers of the school districts of Poudre 1, Mesa 51, El Paso 8, Pueblo 60, and Alamosa II-J; one two-day follow-up conference December 3-4, 1970. Fifteen secondary school teachers will be trained as resource teachers in mathematics for low achieving students and, with assistance from the project staff, will conduct training sessions for other teachers at five regional centers. Dr. Ruth Irene Hoffman, Department of Mathematics.

CONNECTICUT

UNIVERSITY OF BRIDGEPORT, Bridgeport 06602; *Elementary School Science* (AAAS Science — A Process Approach); spring: one week workshop, April 6 —10, 1970; 6 elementary school principals who will also participate in the later phases of the project; summer: 3 weeks, July 6 - 24, 1970; 30 elementary school teachers; academic year 1970 - 71: 28 meetings; 120 elementary school teachers; all participants from the Stamford Public Schools. Teachers and administrators will receive instruction in the materials of the AAAS elementary science program and be prepared to implement the curriculum in their schools. Dr. E. Wesley Menzel, Department of Elementary Education.

THE UNIVERSITY OF CONNECTICUT, Storrs 06268; *Elementary School Science* (AAAS Science — A Process Approach, Science Curriculum Improvement Study and Elementary Science Study materials); spring: 4 meetings; March 7 — April 25, 1970; summer: 2 weeks, August 10-21, 1970; academic year 1970-71: 9 meetings; 75 elementary school teachers from 18 identified school districts. The philosophy content and teaching procedures for the AAAS and SCIS programs will be presented to teachers who will introduce these programs into their classrooms during the academic year. Dr. Odvard Egil Dyrli, School of Education.

DISTRICT OF COLUMBIA

AMERICAN UNIVERSITY, Washington 20016; *Elementary School Science* (AAAS Science — A Process Approach and Science Curriculum Improvement Study materials); summer: 4 weeks, June 29 — July 24, 1970; academic year 1970-71: 9 meetings; 30 elementary school teachers, 10 elementary school principals and 36 students (for demonstration classes) from schools of Montgomery County, Maryland. Teachers will receive training in AAAS and SCIS science materials and will teach one of these programs during the academic year. Dr. Leo Schubert, Department of Chemistry.

CATHOLIC UNIVERSITY OF AMERICA, Washington 20017; *Elementary School Science* (Science Curriculum Improvement Study); summer: 4 weeks, June 17 — July 15, 1970; academic year 1970-71: 27 meetings; 30 elementary school teachers, 15 elementary school principals and 35 students (for demonstration classes) from District of Columbia schools. Teachers will be instructed in the use of the SCIS materials and will teach this program in District of Columbia schools during the following academic year. Dr. Roland J. Goddu, School of Education.

FEDERAL CITY COLLEGE, Washington 20001; *Junior High School Science* (Time, Space and Matter); summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 4 meetings; 30 junior high school teachers and 30 students (for demonstration classes) from District of Columbia public schools. Content, philosophy and teaching procedures for the TSM science program will be presented and teachers will be assisted in introducing TSM into their classes. Mrs. Marylin Bolten, Department of Physics.

HOWARD UNIVERSITY, Washington 20001; *Physical Science* (Introductory Physical Science); summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: classroom visits by project staff; 30 junior high school teachers and 30 students (for demonstration classes) from schools of the District of Columbia. The participants will receive training in IPS materials and will observe and teach IPS lessons under the guidance of the project staff. Dr. Halson V. Eagleson, Department of Physics.

FLORIDA

FLORIDA ATLANTIC UNIVERSITY, Boca Raton 33432; *Chemistry* (CHEM Study); summer: 6 weeks; June 22 — August 1, 1970; academic year 1970-71: 28 meetings; 20 senior high school teachers and 60 students (for demonstration classes) from Palm Beach County schools. Teachers will receive training in CHEM Study, the Tested Overhead Projection Series, and in advanced course materials to upgrade chemistry instruction in County schools. Dr. Samuel F. Clark, Department of Chemistry.

FLORIDA INSTITUTE OF TECHNOLOGY, Melbourne 32901; *Multiple Disciplines* (Science research activities); summer: 8 weeks, June 15 — August 7, 1970, 16 secondary school teachers; academic year 1970-71: 38 meetings; 40 teachers from school systems of Brevard, Indian River, Orange, and Volusia Counties. In the summer phase teachers will participate in life and physical science research programs and during the academic year will guide student research activities with assistance from the project staff. Dr. David D. Woodbridge, Director of Research.

UNIVERSITY OF FLORIDA, Gainesville 32601; *Junior High School Science*; summer: 8 weeks, June 22 — August 14, 1970; academic year 1970-71: 6 meetings; 40 junior high school teachers from Duval County. Teachers will receive special instruction and training to develop their skills in teaching science to students who are educationally disadvantaged. Dr. N. E. Bingham, Department of Science Education.

UNIVERSITY OF SOUTH FLORIDA, Tampa 33620; *Engineering* (Engineering Concepts Curriculum Project); summer: 6 weeks, June 15 — July 24, 1970; academic year 1970-71: 2 meetings plus staff classroom visits; 24 high school teachers and one science supervisor from schools of ten participating counties in Florida. Training in ECCP materials will be provided for teachers to prepare them to teach the ECCP course, "The Man Made World". Dean E. W. Kopp, College of Engineering.

GEORGIA

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta 30332; *Information and Computer Science*; summer: 6 weeks, July 6 — August 14, 1970; academic year 1970-71: 15 meetings, 24 high school teachers from the Atlanta Public School System. The participants will be instructed in information and computer science and will introduce content from these studies into their schools. Mr. A. P. Jensen, School of Information Science.

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta 30332; *Engineering* (Engineering Concepts Curriculum Project materials); summer: 6 weeks, July 6 – August 14, 1970; academic year 1970-71: 16 meetings; 24 high school teachers of science and mathematics from the school systems of the cities of Atlanta, Decatur, and Marietta and the counties of Clayton, Cobb, DeKalb, Douglas, Fulton and Gwinnett. Participating teachers will work with the ECCP course, "The Man Made World," gain experience with associated laboratory equipment and background information and will introduce ECCP into their schools. Dr. Ronal W. Larson, Electrical Engineering Department.

OGLETHORPE COLLEGE, Atlanta 30319; *Junior High School Science* (Life, Earth and Physical Science); summer: 6 weeks, July 13 – August 21, 1970; academic year 1970-71: 9 meetings; 35 junior high school teachers and 5 administrators from Gwinnett and Clayton Counties. Teachers will receive training in junior high school science so as to enable them to implement a new State Curriculum Guide and new curriculum plans for individual Georgia counties. Professor George F. Wheeler, Director, Center for School Services.

HAWAII

UNIVERSITY OF HAWAII, Honolulu 96822; *Intermediate School Science* (Foundational Approaches to Science Teaching materials); summer: 6 weeks, June 15 – July 24, 1970; 24 junior high school teacher-participants from Windward Oahu School District; academic year 1970-71: 17 meetings of the 200 intermediate school science teachers of Oahu. This project will improve science instruction in the intermediate schools by training teachers to implement a laboratory and field-centered science program which has been developed for the State of Hawaii. Dr. Robert L. Campbell, Department of Curriculum and Instruction.

IDAHO

NORTHWEST NAZARENE COLLEGE, Nampa 83651; *Physics* (Harvard Project Physics materials); summer: 6 weeks, June 15 – July 24, 1970; academic year 1970-71: 8 meetings; 30 high school physics teachers from Boise Valley school districts. The project will improve the subject matter and laboratory capability of teachers who are implementing HPP in Idaho schools. Professor Darrell Marks, Physics Department.

UNIVERSITY OF IDAHO, Moscow 83843; *Physical Sciences* (Introductory Physical Science materials); summer: 8 weeks, June 22 – August 14, 1970; academic year 1970-71: 18 meetings; 32 junior high school teachers from identified school districts in Idaho. Teachers will study physical science, in particular the IPS curriculum, and will be helped to use IPS in their classrooms during the academic year. Dr. Michael E. Browne, Department of Physics.

ILLINOIS

ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago 60616; *Mathematics*; summer 8 weeks, June 29 — August 21, 1970; academic year 1970-71: 30 meetings; 15 mathematics department chairmen and 15 secondary school teachers of metropolitan Chicago. Participant teams will be assisted in conducting mathematics pilot courses and teacher training activities to benefit non-college bound and low-achieving students. Mr. C. L. Greeno, Department of Mathematics.

ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago 60616; *Mathematics*; academic year: 8 meetings, September 1970 — January 1971, to be repeated February 1971 — May 1971; two groups of 16 secondary school teachers from Chicago inner-city public schools. Teachers of mathematics courses for students who are not academically inclined will be trained in selected mathematics materials and will be assisted in using these in their classes. Dr. Lawrence A. Machtinger, Department of Mathematics.

NORTHWESTERN UNIVERSITY, Evanston 60202; *Elementary School Science* (Science Curriculum Improvement Study); summer: 3 weeks, August 10 - 28, 1970; academic year 1970-71: 18 meetings; 100 primary grade teachers from cooperating school systems in the Greater Chicago area. Participating teachers will be trained in the SCIS elementary science materials and will implement these into their classrooms. Professor Herman Cember, Department of Civil Engineering.

ROOSEVELT UNIVERSITY, Chicago 60605; *Physical Science* (Introductory Physical Science and Physical Science II materials); summer: 2 weeks, August 12 - 25, 1970; academic year 1970-71: 20 meetings; 48 junior high school teachers and 20 senior high school teachers from the Chicago area. This is a continuation of a project to instruct teachers in the use of IPS and PS II science materials and to introduce these into area classrooms. Dr. Robert W. Estlin, Department of Physics.

UNIVERSITY OF ILLINOIS, Urbana 61801; *Mathematics* (UICSM materials for underachieving students); with Dallas Independent School District; summer 1970: 4 weeks, classes held in Dallas, Texas; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 30 junior high school teachers from the Dallas Independent School District. UICSM "Stretchers and Shrinkers" and "Motion Geometry" courses to classes of underachieving students. Professor Max Beberman, University of Illinois Committee on School Mathematics, 1210 West Springfield, Urbana, Illinois 61801. (This project is also listed under TEXAS.)

UNIVERSITY OF ILLINOIS, Urbana 61801; *Mathematics* (UICSM materials for underachieving students); with Minneapolis Public Schools; summer 1970: 6 weeks, classes held in Minneapolis, Minnesota; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 25 junior high school teachers from the Minneapolis Public Schools. A summer program together with teaching supervision in the academic year will assist teachers in introducing the UICSM "Stretchers and Shrinkers" course to classes of underachieving students. Professor Max Beberman, University of Illinois Committee on School Mathematics, 1210 West Springfield, Urbana, Illinois 61801. (This project is also listed under MINNESOTA.)

UNIVERSITY OF ILLINOIS, Urbana 61801; *Mathematics* (UICSM materials for underachieving students); with School District of Philadelphia; summer 1970: 4 weeks, classes to be held in Philadelphia, Pennsylvania; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 50 junior high school teachers from the School District of Philadelphia. The summer program together with teaching supervision during the academic year to be provided by resident coordinators, will prepare teachers to use the UICSM "Stretchers and Shrinkers" and "Motion Geometry" courses for classes of underachieving students. Professor Max Beberman, University of Illinois Committee on School Mathematics, 1210 West Springfield, Urbana, Illinois 61801. (This project is also listed under PENNSYLVANIA.)

INDIANA

INDIANA INSTITUTE OF TECHNOLOGY, Fort Wayne 46803; *Engineering* (Engineering Concepts Curriculum Project materials); summer: 6 weeks, June 22 – July 31, 1970; academic year 1970-71: 18 meetings; 28 secondary school teachers from Indiana and Ohio schools. This project will prepare teachers in the ECCP course, "The Man Made World," and assist them during the academic year in implementing the course into their schools. Dr. Walter J. Williams, Vice President.

PURDUE UNIVERSITY, Lafayette 47907 *Elementary School Science* (AAAS Science – A Process Approach); summer: 6 weeks, June 15 – July 24, 1970 (two 3-week sessions) academic year 1970-71: 16 meetings; 58 teachers, 2 administrators from the West Lafayette Community School Corporation. Teachers will be trained in the use of the AAAS elementary school science materials and will become resource persons in the school system for the implementation of "Science – A Process Approach". Professor Alfred DeVito, Education Department.

PURDUE UNIVERSITY, Indianapolis 46205; *Mathematics*; summer: 6 weeks, June 15 – July 24, 1970; academic year 1970-71: 30 meetings, 25 elementary and 25 middle school teachers from the Indianapolis Public Schools. The project will strengthen the mathematical background of teachers and relate the training to the use of new mathematics textbooks which are being adopted by the schools. Dr. Elaine V. Alton, Department of Mathematics.

VALPARAISO UNIVERSITY, Valparaiso 46383; *Social Science* (Sociological Resources for the Social Studies and Anthropology Curriculum Study Project materials); summer: 8 weeks, June 15 – August 7, 1970; academic year 1970-71: 48 meetings for 36 senior high school teachers; 3 meetings for 10 administrators and social science supervisors. Cooperating school systems: East Chicago, Hammond, Gary, Michigan City, and systems in the Calumet Region. Participants will be instructed in the use of SRSS and ASCP materials and will be assisted in implementing these curricula into their schools. Dr. Richard D. Knudten, Department of Sociology.

IOWA

UNIVERSITY OF IOWA, Iowa City 52240; *General Science* (Intermediate Science Curriculum Study); summer: 5 weeks, July 6 – August 7, 1970; academic year 1970-71: 30 meetings; 30 junior high school teachers from 12 school districts in Iowa. Training in the use of ISCS materials will be provided teachers in the summer program and the curriculum will be implemented in their classes in the academic year. Dr. Robert E. Yager, Department of General Science Studies.

UNIVERSITY OF NORTHERN IOWA, Cedar Falls 50613; *Physics* (Harvard Project Physics materials); summer: 6 weeks, June 22 – July 31, 1970; academic year 1970-71: 5 meetings; 24 physics teachers from school systems of Cedar Falls, Dubuque, Grundy Center, Marshalltown, Monticello, Monona-Farmersburg-Luanna, New Hampton, North Fayette County, Oelwein, Reinbeck, Starmont, Sumner, Valley, Ventura, Waterloo. Teachers will study the philosophy, content, materials and methods of HPP and receive assistance in implementing the course material in their classes. Dr. Roy Unruh, Physics Department.

KANSAS

KANSAS STATE TEACHERS COLLEGE, Emporia 66801; *Elementary School Science* (AAAS Science – A Process Approach); spring: 15 meetings, February 4 – May 20, 1970; summer: 2-day pre-school orientation in August 1970; academic year 1970-71: 7 meetings, September 9, 1970 – December 16, 1970; 44 elementary teachers, 11 principals and curriculum personnel of the Shawnee Mission Unified School District 512. Participating teachers will be trained in the use of AAAS materials and will be assisted in implementing the AAAS program in their classes. Dr. Bernadette Menhusen, Department of Biology.

KANSAS STATE UNIVERSITY, Manhattan 66502; *Elementary School Science* (AAAS Science – A Process Approach); summer: 3 weeks, August 3 - 21, 1970; academic year 1970-71: 10 meetings; 30 elementary school teachers from the Manhattan Unified School District 383. Teachers in K-2 grades will be instructed in the materials and teaching procedures of the AAAS elementary science program and will implement the program into their schools; some will be identified as master teachers and be prepared to instruct other teachers. Dr. Robert K. James, College of Education.

KENTUCKY

EASTERN KENTUCKY UNIVERSITY, Richmond 40475; *Physical Sciences*; summer: 7 weeks, June 15 – July 31, 1970; academic year 1970-71: 10 meetings; 30 high school teachers from Madison and neighboring counties. Participating teachers will study a locally developed curriculum involving historical and laboratory approaches and will be assisted in introducing this curriculum to first-year high school classes of eastern Kentucky. Dr. Ted M. George, Physics Department.

LOUISIANA

LOUISIANA STATE UNIVERSITY, Baton Rouge 70803; *Chemistry* (CHEM Study materials); summer: 9 weeks, June 8 — August 7, 1970; academic year 1970-71: 6 meetings; 22 high school chemistry teachers from secondary school systems in the Alexandria - Baton Rouge Area. The chemistry program in cooperating schools will be improved through this instructional program for teachers which will provide subject matter and laboratory training and supervised teaching experience. Dr. Darthon V. Wells, Department of Chemistry.

NICHOLLS STATE COLLEGE, Thibodaux 70301; *Mathematics*; summer: 8 weeks, June 15 — August 7, 1970; academic year 1970-71: 30 meetings, 35 junior and senior high school teachers from 11 parishes. The mathematics program in cooperating junior high schools will be improved by providing special courses to strengthen the mathematical background and teaching skills of teachers through Level II, as recommended by CUPM. Dr. Merlin M. Ohmer, Department of Mathematics.

NORTHEAST LOUISIANA STATE COLLEGE, Monroe 71201; *Earth Science* (Earth Science Curriculum Project materials); summer: 6 weeks, June 1 - July 12, 1970; academic year 1970-71: 6 meetings, 24 junior high school teachers from Lincoln, Ouachita, and Richland Parishes. Teachers in a pilot program will receive training in ESCP science materials and teaching procedures for use in presenting ESCP in their schools during the academic year. Dr. Marcus Mapp, Department of Geology.

NORTHWESTERN STATE COLLEGE OF LOUISIANA, Natchitoches 71457; *Earth Science* (Earth Science Curriculum Project materials); summer: 6 weeks, June 8-July 17, academic year, 1970-71: 4 meetings; 22 science teachers from secondary schools in Beauregard, Bienville, Bossier, Caddo, Jackson, Natchitoches, Rapides, Vernon, Webster, and Winn Parishes. The participants will be trained in physical and historical geology, astronomy, and ESCP materials and will teach ESCP in their schools during the academic year. Dr. David A. Dobbins, Department of Geology.

MARYLAND

UNIVERSITY OF MARYLAND, College Park 20742; *Earth-Space Sciences* (Earth Science Curriculum Project materials); summer: 6 weeks, July 13 — August 12, 1970; academic year 1970-71: 8 meetings, 30 planetarium teachers from middle Atlantic school systems. Planetarium personnel will receive training in earth-space science, the inquiry approach to teaching, and will prepare new planetarium programs for implementation in local school district planetariums. Dr. Marjorie H. Gardner, Science Teaching Center.

MASSACHUSETTS

BRIDGEWATER STATE COLLEGE, Bridgewater 02324; *Junior High School Science* (Time, Space and Matter, and ERC Life Science Program); summer: 6 weeks, July 6 — August 14, 1970; academic year 1970-71: 15 meetings, 40 junior high school science teachers from Abington, Bridgewater, Fairhaven, New Bedford, and Scituate school systems. Teachers will receive instruction and laboratory training in TSM and the ERC life science curriculum in preparation for the implementation of these into their school systems during the academic year. Dr. George A. Weygand, Department of Physics.

EASTERN NAZARENE COLLEGE, Wollaston 02170; *Junior High School Science* (Intermediate Science Curriculum Study materials); summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 30 meetings; 40 junior high school teachers and 120 students (for demonstration classes) from Quincy, Stoughton, Sharon, North Reading and Boston Public School Systems and the Pike School. The participants will receive science instruction and laboratory experience in ISCS materials and will implement these into their classes. Dr. John R. Jablonski, Department of Education.

LOWELL STATE COLLEGE, Lowell 01854; *Elementary School Science* (Elementary Science Study materials); summer: 4 weeks, July 6 - August 1, 1970; academic year 1970-71: 27 meetings; 39 elementary school teachers and 3 administrators from schools of Billerica and Lowell. Participating teachers will become familiar with ESS materials, will use them in their schools, and will conduct workshops for non-participating teachers. Dr. Lucille H. Klee, Department of Biological and Physical Sciences.

UNIVERSITY OF MASSACHUSETTS, Amherst 01002; *Elementary School Science* (Science Curriculum Improvement Study materials); summer: 3 weeks, June 18 — July 8, 1970; academic year 1970-71: 10 meetings; 43 elementary school teachers and 60 students (for demonstration classes) from schools of Amherst, Greenfield, Ware, and Belchertown. Teachers will receive training in SCIS materials and will teach the program during the academic year in their classrooms. Dr. Richard D. Konicek, School of Education.

MICHIGAN

CALVIN COLLEGE, Grand Rapids 49506; *Elementary School Science* (Science Curriculum Improvement Study materials); summer: 4 weeks, July 6 — 31, 1970, academic year 1970-71: 18 meetings; 54 elementary school teachers from the Rockford, Martin, Grand Rapids, Kentwood, and East Grand Rapids public school systems, and the Grand Rapids Christian School System. Participating teachers will be instructed in SCIS materials, will be assisted in implementing that curriculum in their classrooms, and will be prepared to serve as resource persons in SCIS in their schools. Professor Vernon Ehlers, Physics Department.

MICHIGAN STATE UNIVERSITY, East Lansing 48823; *Earth Sciences* (Time, Space and Matter, or Earth Science Curriculum Project materials); spring 1970: 3 meetings; summer: 5 weeks, June 22 — July 24; academic year 1970-71: 20 meetings; 20 secondary teachers from Carman School District. This project will implement an earth science program in the junior high schools of Carman School District following the training of participating teachers in the use of TSM or ESCP science materials. Dr. Shirley Brehm, Science and Mathematics Teaching Center.

UNIVERSITY OF DETROIT, Detroit 48221; *Computer Science*; summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 14 meetings; 50 secondary school mathematics or science department chairmen from Macomb County. Instructions will be given to teachers in the use of computers in mathematics and science courses and assistance will be provided as the teachers introduce the computer to their classes. Professor Archie Lytle, Computer Center and Department of Mathematics Education.

MINNESOTA

BETHEL COLLEGE, St. Paul 55101; *Elementary School Mathematics*; summer: 6 weeks, June 15 – July 24, 1970; academic year 1970-71: 12 meetings, 50 elementary school teachers from St. Paul Independent School District No. 625. This project will prepare elementary school teachers to become mathematics specialists who will then conduct in-service mathematics training programs in their schools. Professor Philip R. Carlson, Department of Physical Sciences and Mathematics.

ST. CLOUD STATE COLLEGE, St. Cloud 56301; *Economics*; summer: 5 weeks, June 16 – July 17, 1970; academic year 1970-71: 30 meetings; 30 teachers of social studies from St. Cloud School System and the Thomas Gray Laboratory School. Teachers will receive instruction in economics, will study new economics education strategies and curriculum projects and will incorporate economics course content into their classrooms. Professor Robert J. Highsmith, Director, Center for Economic Education.

UNIVERSITY OF ILLINOIS, Urbana 61801 (with *Minneapolis Public Schools*). *Mathematics* (UICSM materials for underachieving students); summer 1970: 6 weeks, classes held in Minneapolis, Minnesota; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 25 junior high school teachers from the Minneapolis Public Schools. A summer program plus teaching supervision during the academic year will assist teachers in introducing the UICSM "Stretchers and Shrinkers" course to classes of underachieving students. Professor Max Beberman, Curriculum Laboratory. (This project is also listed under ILLINOIS.)

UNIVERSITY OF MINNESOTA, Minneapolis 55455; *Earth Science*; summer: 4 weeks, June 15 – July 10, 1970; academic year 1970-71: field investigations and workshops; 25 teachers from Minneapolis schools. Earth science teachers will receive training in field investigations and be assisted in designing and implementing appropriate field activities for their earth science classes. Professor William C. Phinney, Department of Geology.

WINONA STATE COLLEGE, Winona 55987; *Computer Science*; summer: 7 weeks, June 15 – July 31, 1970; academic year 1970-71: 30 meetings, 40 teachers and principals from Independent School District No. 861. Selected teachers will be trained in computer science with emphasis on multicurriculum applications and will be assisted in incorporating this material in their classroom teaching. Professor David E. Hamerski, Director, Computer Center.

MISSISSIPPI

MISSISSIPPI STATE COLLEGE FOR WOMEN, Columbus 39701; *Elementary School Science* (AAAS Science – A Process Approach); summer: 2 weeks, July 27 – August 14, 1970; academic year 1970-71: 10 meetings; 35 teachers from Pickens County, Alabama, and Columbus, Mississippi. Teachers will study AAAS materials, use them in their classrooms during the academic year, and assist the project staff to train other teachers in the school system. Dr. Harry L. Sherman, Department of Biological Sciences.

UNIVERSITY OF SOUTHERN MISSISSIPPI, Hattiesburg 39401; *Intermediate School Science* (Intermediate Science Curriculum Study, Introductory Physical Science and Earth Science Curriculum Project materials); summer: 6 weeks, July 6 — August 14, 1970; academic year 1970-71: 20 meetings; 60 intermediate school teachers from 30 identified school systems in Mississippi. Teachers will be trained in the methods and content of the junior high school science programs, ISCS, EPS and ESCP and will be assisted in implementing curriculum change in cooperating school districts. Dr. Isadore L. Sonnier, Department of Science Education.

UNIVERSITY OF SOUTHERN MISSISSIPPI, Hattiesburg 39401; *Biology* (Biological Sciences Curriculum Study materials); summer: 6 weeks, June 8 — July 17, 1970; academic year 1970-71: 10 meetings, 20 biology teachers from identified Mississippi school systems. Biology teachers will learn the philosophy, content, rationale and teaching methodologies of BSCS biology and implement this curriculum in their schools. Dr. Bobby E. Craven, Department of Science Education.

MISSOURI

CENTRAL MISSOURI STATE COLLEGE, Warrensburg 64093; *Chemistry* (CHEM Study materials); summer: 8 weeks, June 15 — August 7, 1970; academic year 1970-71: 3 meetings; 25 high school teachers from Kansas City, Cameron R-I Public Schools, Princeton School District R-5, North Kansas City Public Schools and Raytown Consolidated School District No. 2. Participants will study a modern approach to teaching chemistry and will receive supplemental training in subject matter so as to improve the chemistry programs of their schools. Dr. Joe M. Hopping, Department of Chemistry.

SOUTHEAST MISSOURI STATE COLLEGE, Cape Girardeau 63701; *Chemistry* (CHEM Study materials); summer: 8 weeks, June 8 — July 31, 1970; academic year 1970-71: 3 meetings; 25 high school teachers from 49 counties in southeastern Missouri and the City of St. Louis. CHEM Study materials and teaching techniques will be presented to teachers in this project and, with project staff assistance, these will be introduced into school classrooms. Dr. E. Lawrence Bahn, Jr., Department of Chemistry.

SYRACUSE UNIVERSITY, Syracuse, New York 13210 (with the Banneker District of the *St. Louis Public Schools*); *Mathematics* (Madison Project materials); summer: 2 weeks, August 16 — 27, 1970, to be held in St. Louis; 40 teachers, principals and paraprofessionals of grades K-8, and 60 students (for demonstration classes); plus a coordinated program during the academic year 1970-71 for teachers and parents. Director: Dr. Robert E. Davis, Department of Mathematics, Syracuse University; St. Louis contact: Professor William McConnell, Science Department, Webster College, St. Louis, Missouri 63119. (This project is also listed under NEW YORK.)

UNIVERSITY OF MISSOURI, Columbia 65201; *Physical Science* (Introductory Physical Science materials); spring 1970: 16 in-service meetings; summer: 1 week, June 1 - 5, 1970; 20 junior high school teachers of the Ferguson-Florissant School District. In order to improve the quality of physical science teaching in schools that have recently adopted the IPS materials, training in the content and technique of teaching IPS will be given to participants and assistance provided by the project staff to implement these materials successfully in school classrooms. Dr. John Benjamin Leake, Department of Physics.

NEW JERSEY

TRENTON STATE COLLEGE, Trenton 08625; *Physics* (Harvard Project Physics materials); summer: 6 weeks, June 29 — August 7, 1970; academic year 1970-71: 15 meetings, 30 high school physics teachers from 13 Trenton area school districts. Selected teachers will be trained in HPP materials and will introduce these into their high school classes. Professor Fred T. Pregger, Physics Department.

NEW YORK

BROOKLYN COLLEGE OF THE CITY UNIVERSITY OF NEW YORK, Brooklyn 11210; *Mathematics*, summer: 6 weeks, July 1 — August 11, 1970; academic year 1970-71: 5 meetings, 40 junior high school teachers from selected school districts in the New York metropolitan area. Participants will be instructed in mathematics included in the Secondary School Mathematics Curriculum Improvement Study materials and will be assisted in introducing this curriculum in their seventh grade classes during the 1970-71 school year. Dr. Lester L. Gavurin, Department of Mathematics.

BROOKLYN COLLEGE OF THE CITY UNIVERSITY OF NEW YORK, Brooklyn 11210; *Elementary School Science* (Science Curriculum Improvement Study and Elementary Science Study materials); summer: 2 weeks, July 1 - 15, 1970; academic year 1970-71: 15 meetings; 40 teachers, 10 administrators or supervisors and 8 paraprofessionals from elementary schools of Districts 14 and 15 of New York City. Participants will be instructed in the elementary science materials of the SCIS and ESS programs and will be assisted in implementing one of the two programs in their schools during 1970-71. Dr. Belle D. Sharefkin, Department of Education.

COLLEGE CENTER OF THE FINGER LAKES, Corning 14830; *Biological Sciences* (Ecology); summer: 6 weeks, July 6 — August 14, 1970; academic year 1970-71: 16 meetings; 27 high school biology teachers from school districts in the Northern Finger Lakes region of New York State. Teachers will be trained in ecology and its application to the revised biology curriculum in their schools. Dr. Louise F. Potter, Director, Corning Graduate Center.

COLLEGE OF SAINT ROSE, Albany 12203; *Elementary School Science* (AAAS Science — A Process Approach); summer: 3 weeks, June 28 — July 17, 1970; academic year 1970-71: 30 visits by project staff to each participating school; 63 teachers of grades K-2, 11 principals, and 3 supervisors from the School District of Troy. The project will implement the AAAS science program in the elementary grades of the Troy public schools. Professor John F. McGrath, Department of Physical Sciences.

HOFSTRA UNIVERSITY, Hempstead 11550; *Elementary School Science* (Science Curriculum Improvement Study); academic year 1970-71: 30 meetings, 30 elementary school teachers, 3 principals from the Union Free School District No. 2, Uniondale. Participating teachers will be instructed in the materials and teaching methodologies of the SCIS program and will use them in Uniondale schools during 1970-71. Dr. Esther Sparberg, Department of Chemistry.

HUNTER COLLEGE OF THE CITY UNIVERSITY OF NEW YORK, New York 10021; *Chemistry*; summer: 6 weeks, July 1 – August 11, 1970; academic year 1970-71: 30 meetings; 22 high school chemistry teachers from New York City high schools. Participating teachers will work with the project staff to develop new experiments, techniques for assisting educationally disadvantaged, and support materials for the successful implementation of the recently introduced New York State high school chemistry curriculum. Professor Bernard J. Bulkin, Chemistry Department.

STATE UNIVERSITY COLLEGE, Geneseo 14454; *Physical Science* (Intermediate Science Curriculum Study materials); summer: 3 weeks, August 10 - 28, 1970; academic year 1970-71: 18 meetings; 20 teachers of grades 6 - 9 from area school systems. In a plan to effect improvements in the junior high school science program, participating teachers will study the ISCS materials and introduce them in cooperating schools. Professor Russell C. Oakes, Department of Curriculum and Instruction.

STATE UNIVERSITY COLLEGE, Oswego 13126; *Elementary School Science* (Science Curriculum Improvement Study, AAAS Science – A Process Approach, and Elementary Science Study materials); spring 1970: 5 meetings; 15 school administrators; summer: 4 weeks, July 13 – August 7, 1970; academic year 1970-71: 30 meetings; 60 elementary school teachers from 5 schools in Wayne County. Teachers will receive training in the rationale and use of materials produced by AAAS, ESS and SCIS and will teach materials from these new programs during 1970-71. Dr. Raymond T. O'Donnell, Department of Chemistry.

STATE UNIVERSITY OF NEW YORK AT ALBANY, Albany 12203; *Junior High School Science* (Intermediate Science Curriculum Study materials); summer: 3 weeks, August 10 - 28, 1970; academic year 1970-71: 16 meetings; 20 junior high school science teachers from Albany area schools. Participating teachers will be instructed in the ISCS program and will be assisted by the project staff in using discovery approaches in teaching science to students. Dr. Thomas Boehm, Department of Science Education.

STATE UNIVERSITY OF NEW YORK AT STONY BROOK, Stony Brook 11790; *Elementary School Science* (AAAS Science – A Process Approach, Elementary Science Study, Science Curriculum Improvement Study, and Quantitative Approach to Elementary School Science materials); spring 1970: 6 meetings; summer 1970: 4 one-week sessions, June 22 – August 28, 1970; academic year 1970-71: 9 meetings; 225 elementary school teachers from Suffolk County. Teachers will be trained to use the materials of three elementary science programs for introduction in their own classrooms during 1970-71. Mr. Lester G. Paldy, Center for Continuing Education-Physics.

SYRACUSE UNIVERSITY, Syracuse 13210; *Mathematics* (Madison Project materials), with New York City Public Schools; summer: 2 weeks, August 16 - 27, 1970, to be held in New York City; plus coordinated program during academic year 1970-71; 150 teachers and 50 students (for summer demonstration classes). Director: Dr. Robert B. Davis, Department of Mathematics, Syracuse University; New York City contact: Mr. George Grossman, Director of Mathematics, New York City Public Schools, Brooklyn, New York 11001.

SYRACUSE UNIVERSITY, Syracuse 13210; *Mathematics* (Madison Project materials), with Los Angeles City School System; academic year 1969-70: a resident coordinator will work with schools within the Los Angeles City School System to continue the implementation of the Madison Project mathematics materials into grades K-8, involving the participation of teachers, principals, and other school administrators. Dr. Robert B Davis, Department of Mathematics. (This project is also listed under CALIFORNIA.)

SYRACUSE UNIVERSITY, Syracuse 13210; *Mathematics* (Madison Project materials), with the Banneker District of the St. Louis Public Schools; summer: 2 weeks, August 16 - 27, 1970, to be held in St. Louis; 40 teachers, principals, and paraprofessionals of grades K-8, and 60 students (for demonstration classes); plus a coordinated program during the academic year 1970-71. Dr. Robert B. Davis, Department of Mathematics. (This project is also listed under MISSOURI.)

SYRACUSE UNIVERSITY, Syracuse 13210; *Mathematics* (Madison Project materials), with the School District of Philadelphia; summer: 6 weeks, July 20 - August 28, 1970, to be held in Philadelphia; plus coordinated program during academic year 1970-71, for teachers of grades K-8 and supervisors. Dr. Robert B. Davis, Department of Mathematics. (This project is also listed under PENNSYLVANIA.)

SYRACUSE UNIVERSITY, Syracuse 13210; *Mathematics* (Madison Project materials), with the Richmond, Virginia Public Schools; summer: 2 weeks, August 14 - 28, 1970, to be held in Richmond; plus a coordinated program during the academic year 1970-71; 50 teachers from the Richmond Public Schools. Dr. Robert B. Davis, Department of Mathematics. (This project is also listed under VIRGINIA.)

YORK COLLEGE OF THE CITY UNIVERSITY OF NEW YORK, Queens 11365; *Physics*; summer: 6 weeks, June 29 - August 7, 1970; academic year 1970-71: 246 meetings; 12 secondary school science teachers and 30 students (for demonstration classes) from Jamaica and Richmond Hill High Schools of New York City. University scientists will participate with teachers in a cooperative University-High School-Industrial program in physics for disadvantaged high school students. Dr. Frank R. Pomilla, Division of Natural Sciences and Mathematics.

WALDEMAR MEDICAL RESEARCH FOUNDATION, INC., Woodbury 11797; *Biological Sciences*; summer: 6 weeks, June 29 - August 7, 1970; 5 high school science teachers and 75 students; academic year 1970-71: 16 meetings; 25 high school science teachers and 125 students; participants from New York City and Long Island schools. Teachers will receive training in the conduct of research and learn to guide secondary school student research teams. Dr. Leo Gross, Director, Educational Programs.

NORTH CAROLINA

APPALACHIAN STATE UNIVERSITY, Boone 28607; *Elementary School Science*; summer: 5 weeks, June 8 - July 10, 1970; academic year 1970-71: 2 meetings; 24 elementary school teachers. The participants will be prepared to teach environmental science in classroom and field and, under the direction of the State Science Supervisor, will serve as a nucleus of persons to help initiate this subject into elementary schools of the State. Dr. F. Ray Derrick, Department of Biology.

EAST CAROLINA UNIVERSITY, Greenville 27834; *Earth Science*; summer: 8 weeks, June 8 — July 31, 1970; academic year 1970-71: 9 meetings; 60 junior high school earth science teachers from schools of Elizabeth City, Fayetteville and Rocky Mount. Participants will study laboratory and field-oriented course work in astronomy and geology and will serve as leaders during the academic year in the development of continuing in-service programs for earth science teachers in eastern North Carolina. Dr. Floyd E. Mattheis, Department of Science Education.

UNIVERSITY OF NORTH CAROLINA, Charlotte 28205; *Earth Science* (Earth Science Curriculum Projects materials); summer: 6 weeks, June 8 — July 17, 1970; academic year 1970-71: 18 meetings; 40 secondary school teachers from Cabarrus, Concord, Gaston, Iredell, Lincoln, Mecklinburg, Rowan, Stanly, and Union Counties and Albermarle City. Teachers in this program will be trained in ESCP materials and with assistance from the project staff will implement the curriculum into their classrooms. Dr. James W. Clay, Department of Geography and Geology.

NORTH DAKOTA

MINOT STATE COLLEGE, Minot 58701; *Earth Science* (Earth Science Curriculum Project); summer: 6 weeks, July 20 — August 29, 1970; academic year 1970-71: 55 meetings; 22 eighth grade earth science teachers from public schools in Berthold, Donnybrook, Garrison, Granville, Kenmare, Minot, and Velva, North Dakota. The project will train teachers of earth science to present that subject more successfully to their classes and will provide various other kinds of assistance to improve the earth science programs of cooperating schools. Dr. Robert Lessard, Department of Physical Science.

OHIO

KENT STATE UNIVERSITY, Kent 44240; *Chemistry*; academic year 1970-71: 28 meetings; 30 secondary school teachers from the city districts of Kent, Massillon, Canton, Ravenna, Akron, and Cuyahoga Falls and county districts of Summit and Portage. Teachers will receive instruction in chemical instrumentation and will be assisted in developing chemistry content material and visual aids for presentation in existing courses in their schools. Professor Norman V. Duffy, Chemistry Department.

OHIO STATE UNIVERSITY, Columbus 43210; *Junior High School Science*; summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 6 meetings, 40 junior high school teachers from Allen and Richland Counties and Mansfield, Ashland, and Galion. Participants will study earth science and physical science subject matter and continue the development and implementation of laboratory-oriented science courses in grades 7 - 9 of participating schools. Dr. Victor J. Mayer, Faculty of Science and Mathematics Education.

OHIO UNIVERSITY, Athens 45701; *Economics*; summer: 6 weeks, June 22 — August 1, 1970; academic year: 21 meetings, January — May 1971; 30 secondary school teachers in summer phase, as many as 150 in academic year; teachers from the public schools of Columbus and Lancaster. Experienced teachers will study the "Economics Curricular Materials" approach to teaching economics, will use these materials in their classrooms, will formulate a school course of study in economics, and will serve as consultants and instructors for in-service courses to be offered to other social studies teachers in the school district. Dr. Kenneth Light, Department of Economic Education.

OHIO UNIVERSITY, Athens 45701; *Junior High School Physical Science* (Intermediate Science Curriculum Study materials); summer: 6 weeks, July 13 — August 21, 1970; academic year 1970-71: 15 meetings, 20 junior high school teachers and 10 school administrators from school districts in Richland, Hamilton and Athens Counties. This project is designed to improve science instruction in the junior high schools of cooperating districts by training teachers in the content and teaching methodologies of the ISCS program. Dr. Ray Skinner, Jr., Secondary Education Department.

OHIO UNIVERSITY, Athens 45701; *Biology* (Biological Sciences Curriculum Study materials); summer: 6 weeks, June 14 — July 24, 1970; academic year 1970-71: 6 meetings; 25 secondary school biology teachers from Fairfield, Perry and Washington Counties and from the cities of Lancaster, Hocking, and Athens. Biology teachers will be trained in modern biological concepts and teaching techniques and in the use of BSCS materials and will be assisted to introduce these into their schools. Professor Weldon L. Witters, Zoology Department.

THE UNIVERSITY OF AKRON, Akron 44304; *Earth Science*; summer: 10 weeks, June 22 — August 28, 1970; academic year 1970-71: 10 meetings; 40 junior high school earth science teachers from Akron Public Schools. Participating teachers from schools which have recently adopted an earth science program will be assisted to attain competency in teaching that subject as required by their new teaching responsibilities. Professor Jim L. Jackson, Department of Geology.

OKLAHOMA

EAST CENTRAL STATE COLLEGE, Ada 74820; *Junior High School Science* (Intermediate Science Curriculum Study and Elementary Science Study materials); summer: 5 weeks, July 20 — August 21, 1970; academic year 1970-71: 10 meetings; 30 junior high school teachers from Ada, Seminole, Wewoka, Konawa, Sulphur, Holdenville, and Byng Public Schools. Teachers will acquire experience in the effective use of ISCS and ESS materials; will teach and develop demonstration classrooms using these materials and will serve as resource persons in their schools. Dr. Don G. Stafford, Department of Chemistry.

OKLAHOMA STATE UNIVERSITY, Stillwater 74074; *Sociology* (Sociological Resources for the Social Studies); summer: 6 weeks, June 15 — July 27, 1970; 30 secondary school social studies teachers; 2 days, June 8-9, 1970; 30 secondary school principals; academic year 1970-71: 8 or more meetings for 75 teachers; teachers and administrators from the Tulsa Public School System. Principals and key teachers will receive training in the SRSS materials, will introduce the curriculum into their social studies classes, and will direct in-service sessions in SRSS materials to benefit other social science teachers in the school system. Dr. Jerry Crockett, Arts and Sciences Extension.

UNIVERSITY OF OKLAHOMA, Norman 73069; *Junior High School Science* (Introductory Physical Science and Time, Space, and Matter materials); summer: 5 weeks, June 15 — July 17, 1970; academic year 1970-71: 15 meetings, 25 junior high school teachers from the public schools of Norman, Moore, Noble, Mustang, Tecumseh, Shawnee, Mason, Tulsa, and Lawton. Science teachers will be trained in the use of the IPS and TSM materials and will prepare plans for implementing these programs into their classes during the academic year. Dr. John W. Renner, College of Education.

OREGON

EASTERN OREGON COLLEGE, La Grande 97850; *Elementary School Science* (AAAS Science — A Process Approach); summer: 2 weeks, June 15 — 26, 1970; academic year 1970-71: weekly classroom supervision by project staff and participating school administrators; one seminar; 32 elementary school teachers and 4 supervising principals from the Pendleton and La Grande Public School Districts. Participants will receive training in the use of AAAS materials, will teach the materials, and will supervise the introduction of the AAAS curriculum in classrooms of four elementary schools. Dr. Virgil A. Bolen, Chairman, Department of Physical Science.

PORTLAND STATE UNIVERSITY, Portland 97207; *Interdisciplinary Science*; summer: 8 weeks, June 22 — August 14, 1970; academic year 1970-71: 33 meetings; 20 teachers from the Beaverton, Milwaukie and Portland School Districts. Teachers will be trained in the use of materials of a three-year sequence in biology, physical science, chemistry, and physics and will be assisted in incorporating the curriculum into their science classes. Dr. Michael Fiasca, Division of Science.

PENNSYLVANIA

CARLOW COLLEGE, Pittsburgh 15213; *Elementary School Science* (Elementary Science Study materials); summer: 2 three-week sessions, June 22 — July 10 and July 13 - 31, 1970; academic year 1970-71: 15 meetings; 90 elementary school teachers, 10 elementary supervisors from the Pittsburgh Public Schools. The project will train a corp of key teachers and supervisors who will assume an active role in implementing a new science curriculum. Dr. William A. Uricchio, Department of Biology.

THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, Philadelphia 19102; *Biological Sciences*; summer: 8 weeks, July 5 — August 28, 1970; academic year 1970-71: 18 meetings, 20 teachers and 40 students from the School District of Philadelphia. This project will initiate and implement new approaches to science teaching for culturally deprived high school students in the Philadelphia Public School System. Victor P. Satinsky, M. D., Department of Surgery.

PENNSYLVANIA STATE UNIVERSITY, University Park 16802; *Elementary School Science* (AAAS Science — A Process Approach); summer: 4 weeks, July 27 — August 21, 1970; academic year 1970-71: local supervision by coordinators, consultation by staff through audio-tape communication with participants; 10 science coordinators and 100 teachers of the United States Dependents Schools European Area (USDESEA). This project, which will be centered in Europe, will prepare USDESEA science coordinators and key teachers to provide instruction and consultant help in the implementation of the AAAS program throughout the USDESEA system. Dr. Dorothy Alfke, Department of Elementary Education.

PENNSYLVANIA STATE UNIVERSITY, University Park 16802; *Engineering* (Nuclear); summer: 4 weeks, August 3 - 28, 1970; academic year 1970-71: 3 two-day meetings; 30 secondary school teachers from pilot schools participating in the Pennsylvania Nuclear Science Project. The project will prepare high school teachers to instruct above-average students in nuclear physics, nuclear and radiochemistry, nuclear reactor theory and radioisotopes with applications to the physical and life sciences. Dr. William A. Jester, Department of Nuclear Engineering.

PMC COLLEGES, Chester 19013; *High School Science*; summer: 6 weeks, June 15 – July 31, 1970; academic year 1970-71: 10 meetings; 30 high school teachers from Delaware County and Delaware Valley. Teachers of mathematics and science will receive instruction in modern concepts of engineering and will be assisted by the project staff in presenting this material to their classes. Dr. Michael P. Smyth, School of Engineering.

SYRACUSE UNIVERSITY, Syracuse, New York 13210 (with the *School District of Philadelphia*); *Mathematics* (Madison Project materials); summer: 6 weeks, July 20 – August 28, 1970, to be held in Philadelphia; plus coordinated program during academic year 1970-71, for teachers and supervisors of grades K-8. Director: Dr. Robert B. Davis, Department of Mathematics, Syracuse University; Philadelphia contact: Mr. Karl S. Kalman, Director of Mathematics, School District of Philadelphia, Parkway at 21st Street, Philadelphia, Pennsylvania 19103. (This project is also listed under NEW YORK.)

UNIVERSITY OF ILLINOIS, Urbana 61801 (with the *School District of Philadelphia*); *Mathematics* (UICSM materials for underachieving students); summer 1970: 4 weeks, classes to be held in Philadelphia, Pennsylvania; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 50 junior high school teachers from the School District of Philadelphia. Professor Max Beberman, Curriculum Laboratory. (This project is also listed under ILLINOIS.)

UNIVERSITY OF PITTSBURGH, Pittsburgh 15213; *Earth Science*; summer: 6 weeks, June 29 – August 7, 1970; academic year 1970-71: 75 meetings; 20 junior high school teachers in summer phase, 37 in the academic year; from 21 public and parochial schools in Allegheny County. Teachers will study summer and academic year courses emphasizing earth science field activity, work with project staff in developing a modified ESCP earth science course suited to local needs, and introduce or expand earth science courses in their schools. Dr. Norman K. Flint, Department of Earth and Planetary Sciences.

WEST CHESTER STATE COLLEGE, West Chester 19380; *Computer Science*; summer: 6 weeks, June 22 – July 31, 1970; academic year 1970-71: 9 meetings; 30 secondary school teachers from Bucks, Chester, Delaware, and Montgomery Counties. Teachers will be trained in computer programming and usage and will be guided in developing and introducing instructional programs involving the computer in their school districts. Professor Wesley E. Fasnacht, Computer Services.

WILKES COLLEGE, Wilkes-Barre 18703; *Physical Science* (Intermediate Science Curriculum Study materials); summer: 3 weeks, August 3 - 21, 1970; academic year 1970-71: 20 meetings; 30 junior high school science teachers from Bethlehem Area School District and Wyoming Valley West School District. Teacher teams will receive instruction in materials of the ISCS program and will introduce this curriculum into their schools during the academic year. Dr. Stanley J. Holden, Department of Physics.

WILSON COLLEGE, Chambersburg 17201; *Elementary School Science* (AAAS Science – A Process Approach); summer: 2 weeks, August 3-14, 1970; academic year 1970-71: 9 meetings; 80 teachers of grades K-2 from the Chambersburg Area School District. The project will instruct teachers of grades K-2 in the AAAS elementary science materials and assist them to implement the AAAS program in their schools. Dr. Lester A. Giles, Jr., Education Department.

RHODE ISLAND

UNIVERSITY OF RHODE ISLAND, Kingston 02881, *Computer Science*; academic year activities: March 1, 1970 — February 28, 1971, in-service courses and classroom instruction; 70 teachers and 400 students from high schools of Rhode Island. Computer science and the use of computers for problem solving in mathematics, physics, chemistry, and biology will be presented to teachers and students through in-service courses and classroom instruction; schools will be given assistance in introducing computers in their mathematics-science curriculums. Dr. William J. Hemmerle, Director, Computer Laboratory.

SOUTH CAROLINA

CLEMSON UNIVERSITY, Clemson 29631; *Mathematics*; summer: 8 weeks, June 11 — August 6, 1970; academic year 1970-71: 30 meetings; 20 secondary teachers from Clarendon, Kershaw, Lee, and Sumter County public schools. Teachers will improve their knowledge of mathematical concepts and their ability to present these through training in special courses and through classroom visits by the project staff. Dr. James L. Flatt, Department of Mathematics.

SOUTH DAKOTA

AUGUSTANA COLLEGE, Sioux Falls 57102; *Elementary School Mathematics*; summer: 5 weeks, June 8 — July 10, 1970; academic year 1970-71: 17 meetings; 40 elementary school teachers from Sioux Falls Public School System. Participating teachers will study modern mathematics topics, develop teaching techniques, and will assist other school teachers to improve the elementary mathematics program of Sioux Falls schools. Professor Verlyn Lindell, Mathematics Department.

BLACK HILL STATE COLLEGE, Spearfish 57783; *Elementary School Science (AAAS Science — A Process Approach)*; summer: 4 weeks, July 13 — August 7, 1970; academic year 1970-71: 30 meetings; 23 elementary school teachers from Spearfish elementary schools. Participants will receive training in the content, rationale, and classroom implementation of the AAAS materials and will be assisted in introducing that program in their schools in 1970-71. Dr. Everett L. Follette, Department of Science and Mathematics.

TENNESSEE

AUSTIN PEAY STATE UNIVERSITY, Clarksville 37040; *Mathematics*; summer: 5 weeks, July 13 — August 14, 1970; academic year 1970-71: 11 meetings; 25 junior high school mathematics teachers, 20 students (for demonstration classes) from 8 counties in middle Tennessee and southern Kentucky. Participants will be helped to improve mathematics courses for educationally disadvantaged students and to provide in-service training in mathematics for other teachers. Dr. William G. Stokes, Department of Mathematics.

CHRISTIAN BROTHERS COLLEGE, Memphis 38104; *Biology*; summer: 6 weeks, June 15 – July 24, 1970; academic year 1970-71: 9 meetings; 40 junior high school teachers from Memphis City and Shelby County School Systems. Teachers will study biology with emphasis on laboratory and field work and on BSCS materials; they will implement newly defined curricula in their schools during the academic year. Brother Robert Staub, Ph.D., Biology Department.

EAST TENNESSEE STATE UNIVERSITY, Johnson City 37601; *Elementary School Mathematics*; summer: 5 weeks, June 15 – July 17, 1970; academic year 1970-71: 33 meetings; 16 elementary school teachers, 8 elementary school principals, and 1 supervisor of elementary grades, Washington County schools. Participating teachers will receive training in mathematics topics and teaching procedures and will become resource persons in mathematics for their schools. Dr. Lester C. Hartsell, Department of Mathematics.

MEMPHIS STATE UNIVERSITY, Memphis 38111; *Earth Science*; summer: 8 weeks, June 8 – July 31, 1970; academic year 1970-71: 18 meetings; 30 junior high school teachers from Memphis City and Shelby County School Systems. This project will prepare teachers to use inquiry-oriented earth science materials and will instruct them in the content and approach of the ESCP course, "Investigating the Earth". Dr. John A. Sobol, Department of Geography.

MEMPHIS STATE UNIVERSITY, Memphis 38111, *Multiple Sciences* (Physical Science and Biochemistry); summer: 8 weeks, June 15 – August 7, 1970; 24 secondary school teachers; academic year: 32 weeks, September 19, 1970 – May 28, 1971; 48 secondary school teachers from Memphis City Schools and Shelby County Schools, 24 in each of two phases of the academic year program. One group of teachers will be trained to teach IPS materials while another group will be prepared to teach molecular biology in the advanced placement high school biology and chemistry courses of their schools. Dr. H. Graden Kirksey, Department of Chemistry and Physical Science.

UNIVERSITY OF TENNESSEE AT CHATTANOOGA, Chattanooga 37403; *Earth Science* (Earth Science Curriculum Project); summer: 6 weeks, July 16 – August 25, 1970; academic year 1970-71: 15 meetings; 30 teachers from Hamilton County School System. Teachers will receive background science training, will study ESCP materials and will introduce the ESCP curriculum in their classes during the academic year. Dr. Robert Lake Wilson, Department of Geology.

TEXAS

ANGELO STATE UNIVERSITY, San Angelo 76901; *Physical Sciences*; summer: 6 weeks, June 3 – July 10, 1970; academic year 1970-71: 18 meetings; 45 ninth grade physical science teachers from 10 West Texas counties. Teachers will receive training in concepts of physical science and prepare to teach a laboratory oriented course based on a "Resource Guide" of the Texas Education Agency. Dr. Bernard T. Young, Associate Dean.

NORTH TEXAS STATE UNIVERSITY, Denton 76203; *Elementary School Mathematics*; summer: 6 weeks, June 1 — July 10, 1970; academic year 1970-71: 16 meetings; 30 teachers, grades 1 - 5, from Fort Worth Independent School District. Teachers will study mathematics content and teaching strategies to improve classroom instruction in mathematics and will serve as in-service leaders in their schools during the academic year. Dr. B. G. Nunley, Department of Mathematics.

STEPHEN F. AUSTIN STATE UNIVERSITY, Nacogdoches 75961; *Mathematics*; summer: 5½ weeks, June 1 — July 8, 1970; academic year 1970-71: 16 meetings; 20 ninth grade algebra teachers from 15 school districts of East Texas. Participating school system teachers will study a course in modern algebra and prepare teaching units which will be introduced in their classrooms during the academic year. Dr. W. I. Layton, Mathematics Department.

UNIVERSITY OF HOUSTON, Houston 77004; *Physical Sciences*; summer: 6 weeks, July 13 — August 21, 1970; academic year 1970-71: 16 meetings; 30 ninth grade physical science teachers in summer phase, 60 in the academic year phase from Region II and Region IV Service Centers and Houston Independent School District. This project will strengthen subject matter competency of science teachers who will initiate and implement a laboratory oriented physical science course in their schools based on a "Resource Guide" in the physical sciences of the Texas Education Agency. Dr. Silas W. Schirner, Department of Curriculum and Instruction.

UNIVERSITY OF ILLINOIS, Urbana 61801 (with *Dallas Independent School District*); *Mathematics* (UICSM materials for underachieving students); summer 1970: 4 weeks, classes held in Dallas, Texas; academic year 1970-71: in-service meetings, consultation provided to schools by project staff; 30 junior high school teachers from the Dallas Independent School District; Professor Max Beberman, Curriculum Laboratory. (This project is also listed under ILLINOIS.)

UNIVERSITY OF TEXAS AT AUSTIN, Austin 78712; *Physical Sciences*; summer: 7 weeks, June 8 — July 28, 1970; academic year 1970-71: 16 meetings; 20 teachers of ninth grade physical science from Central Texas. The participants will receive laboratory oriented training in physical sciences and prepare to teach a course based on a "Resource Guide" in the physical sciences of the Texas Education Agency. Dr. R. N. Little, Department of Physics.

UNIVERSITY OF TEXAS AT EL PASO, El Paso 79999; *Physical Sciences*; summer: 6 weeks, June 4 — July 15, 1970; academic year 1970-71: 10 meetings, 40 teachers of ninth grade physical science from the El Paso and Ysleta Independent School Districts. Participating science teachers will be trained in the materials of a "Resource Guide" in the physical sciences of the Texas Education Agency and will be assisted in implementing these materials in 9th-grade physical sciences classes. Professor Max C. Bolen, School of Science.

UTAH

BRIGHAM YOUNG UNIVERSITY, Provo 84601; *Mathematics* (UICSM materials); summer: 6 weeks, June 8 – July 17, 1970; academic year: 4 meetings, 57 junior high school teachers from 10 Utah school districts. Teachers will study the UICSM materials prepared for 7th and 8th grade underachieving mathematics students and will use them in their classes during the academic year. Dr. Theodore Wight, Department of Mathematics.

SOUTHERN UTAH STATE COLLEGE, Cedar City 84720; *Elementary School Science* (AAAS Science – A Process Approach and Science Curriculum Improvement Study materials); summer: 3 weeks, July 13 - 31, 1970; academic year 1970-71: 3 meetings; 28 teachers and 7 principals from schools of southern Utah and nearby regions in Nevada and Arizona. Participants will study the curriculum materials prepared in the AAAS and SCIS programs and will introduce them in elementary school classes. Professor George LeBaron, Physical Science Department.

VIRGINIA

OLD DOMINION UNIVERSITY, Norfolk 23508; *Biology* (Marine Science); spring: 15 meetings, February 9 – May 25, 1970; summer: 6 weeks, June 22 – July 31, 1970; 30 junior and senior high school teachers from Virginia Beach and Portsmouth schools; 60 high school students (for demonstration classes) during the summer phase. Participating teachers will be provided course work, laboratory training and field experiences in marine science and will work in teacher-student groups for practical teaching experience; during the academic year they will introduce marine science materials in the biology courses of their schools. Dr. Melvin A. Pittman, School of Sciences.

SYRACUSE UNIVERSITY, Syracuse, New York 13210 (with the *Richmond, Virginia Public Schools*); *Mathematics* (Madison Project materials); summer: 2 weeks, August 14 - 28, 1970; to be held in Richmond; plus a coordinated program during the academic year 1970-71, 50 teachers of grades K-8 from the Richmond Public Schools. Director: Dr. Robert B. Davis, Department of Mathematics, Syracuse University; Richmond contact: Dr. Lucien T. Hall, Jr., Mathematics Coordinator, Richmond Public Schools, 4100 West Grace Street, Richmond, Virginia 23230. (This project is also listed under NEW YORK.)

WEST VIRGINIA

MARSHALL UNIVERSITY, Huntington 25701; *Physical Science*; summer: 5 weeks, July 20 – August 21, 1970; academic year 1970-71: 8 meetings; 30 junior high school science teachers from Boone, Cabell, Kanawha, Lincoln, Mason, Putman and Wayne Counties. Teachers will be trained in the use of physical science materials and will be assisted by the project staff in presenting the materials to their classes. Dr. Donald C. Martin, Department of Physics and Physical Science.

WEST VIRGINIA STATE COLLEGE, Institute 25112; *Chemistry* (CHEM Study materials); summer: 6 weeks, June 22 — July 31, 1970; academic year 1970-71: 12 meetings, 30 high school teachers and one supervisor from the school systems in Kanawha, Putman, Cabell, Jackson, Boone and Fayette Counties. This project will provide instruction and guidance for teachers who will be helped to improve chemistry teaching in their schools. Dr. Herbert P. Kagen, Chemistry Department.

WEST VIRGINIA UNIVERSITY, Morgantown 26506; *Mathematics*; summer: 8 weeks, June 17 — August 11, 1970; academic year 1970-71: 8 meetings; 30 high school teachers from 15 West Virginia counties. Teachers in this continuing project will revise pre-calculus mathematics electro-tapes already produced and, with assistance from the project staff, the new tapes will be used to improve mathematics instruction in the participating schools. Professor J. C. Eaves, Department of Mathematics.

WISCONSIN

UNIVERSITY OF WISCONSIN, Madison 53706; *Elementary School Science and Mathematics*; summer: 6 weeks, June 22 — August 1, 1970; 35 elementary school teachers from the Madison Public Schools. Teachers who have previously been trained in elementary mathematics and the implementation of the Greater Cleveland Mathematics Program will study AAAS materials, use them in teaching, and serve as science and mathematics resource persons to their schools. Dr. John G. Harvey, Department of Mathematics.

WISCONSIN STATE UNIVERSITY, Fond du Lac 54935; *Elementary School Science* (Elementary Science Study materials); summer: 6 weeks, June 29 — August 7, 1970; academic year 1970-71: 8 meetings; 24 elementary school teachers, 10 elementary principals and 36 students (for demonstration classes) from Fond du Lac Joint School District No. 1. Participants will receive instruction in the use of ESS materials and will implement them in grades K-6 of their schools during the academic year. Dr. Eugene J. Beck, Division of Extended Services.

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